Ministry of Energy

SUBMISSION TO THE

STANDING SENATE COMMITTEE ON

ENERGY AND NATURAL RESOURCES

- REVIEW OF THE NATIONAL

ENERGY PROGRAM

HD
9502
.C33
.O565

c.1
tor mai

ONTARIO MINISTRY OF
TREASURY AND ECONOMICS
HW20
JUL 24
84-824
LIBRARY

SUBMISSION TO THE STANDING SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES - REVIEW OF THE NATIONAL ENERGY PROGRAM

MINISTRY OF ENERGY

JUNE 1984

Digitized by the Internet Archive
in 2018 with funding from
Ontario MInistry of Finance

https://archive.org/details/submissiontostan00cana

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
PRICING AND MACROECONOMIC IMPACTS	2
REVENUE SHARING	6
ONTARIO'S ENERGY SITUATION	9
- Changes in Ontario's Energy Demand	9
- Energy Conservation	11
- Oil Substitution	13
- Energy Supply Security	15
- Renewable Energy Development	19
CANADIANIZATION	22
CONCLUSION	25

THE NATIONAL ENERGY PROGRAM

INTRODUCTION

The Ontario Ministry of Energy is pleased to participate in this review of the National Energy Program (NEP) by the Standing Senate Committee on Energy and Natural Resources.

This submission provides a perspective on the effects of the NEP to date with a principal focus on Ontario. The province, with its relatively large population and industrial base, is the largest energy market in Canada. It is the main consumer of domestically produced crude oil and natural gas.

The NEP is interpreted to include the objectives, principles, policies and programs set out in the original document of October 1980, as well as the ensuing changes arising from the Canada/Alberta Agreement of September 1981 and similar agreements with other provinces, the NEP Update of May 1982 and the Amendment to the Canada/Alberta Agreement of June 1983.

The fundamental objectives of the NEP are energy security, fairness in pricing and revenue sharing and opportunity for Canadians to participate in the ownership of their petroleum industry. These objectives have been pursued through a set of measures relating to crude oil and natural gas pricing, taxation and incentives for both energy users and energy suppliers.

The following sections review the key NEP measures that have been implemented in pursuit of the stated goals and their impacts on the national situation in general and on Ontario specifically.

PRICING AND MACROECONOMIC IMPACTS

Ontario produces close to two-fifths of Canada's economic output. It has a diversified industrial base and relies heavily on external markets for the creation of income and employment. Approximately one-half of Ontario's manufacturing output is sold within the province, one-quarter is shipped to other provinces and the balance goes to foreign markets. In some industries, such as machinery, transportation equipment and pulp and paper, over 70 per cent of output is sold outside of Ontario. Furthermore, domestic markets are open to external competition through imports.

Although Ontario has major hydroelectric and uranium resources, the province depends on outside sources for virtually all of its supplies of petroleum and natural gas. As a result, oil and gas price increases have an adverse effect on the province's terms of trade and overall economic performance. As income is diverted to pay for higher-priced energy, less spending occurs in other sectors of the economy. Even if the energy supplies are not purchased abroad, a huge shift in expenditure to the energy sector results in a dislocation of resources in non-energy producing industries. The result is a drop in provincial output and employment.

One of the explicit promises of the NEP was: "The blended price (of crude oil) will never exceed 85 per cent of the international price or the average price of oil in the United States, whichever is lower." Over the last year, the blended price has exceeded this target. Currently, it is about 93 per cent of the international price at Montreal and an even higher percentage of the price of comparable crude oil on the U.S. Gulf Coast.

The Canada/Alberta Agreement linked the Toronto wholesale price of natural gas to the Toronto blended oil price. The parity ratio was set at 65 per cent of the blended price on a heat content basis in order to encourage substitution for oil. The federal Natural Gas and Gas Liquids Tax (NGGLT) was the primary mechanism for adjusting the natural gas price to achieve the parity ratio.

Currently, the 65 per cent parity ratio is in effect with the NGGLT reduced to zero. The blended oil price has been stable over the past year. As a result the wholesale natural gas price has been relatively constant. However, wholesale gas prices in the United States have dropped markedly in the same period and, with the introduction of special marketing programs, many industries in the United States can now buy natural gas for at least one dollar per Mcf below former prices. Consequently, the competitive position of Ontario manufacturers has been weakened.

Furthermore, with the flexibility provided by the NGGLT no longer available, there is considerable uncertainty that the 65 per cent parity will be maintained after the Amendment to the Canada/Alberta Agreement expires on January 31, 1985.

The price increases between 1979 and 1983 virtually doubled Ontario's wholesale costs of crude oil and natural gas, from $4.7 billion to about $9 billion. Based on 1983 consumption levels, a one dollar per barrel increase in domestic crude oil prices adds about $180 million to Ontario's annual energy bill. A twenty-five cent increase per Mcf in natural gas prices adds approximately $160 million to the bill.

The estimated, cumulative macroeconomic impact of energy price increases was a 3 to 4 per cent reduction in Ontario's total real output and a loss of 90,000 jobs over the 1979-83 period. Furthermore, as much as one-third of the inflation experienced in the past several years has been due to energy price escalation.

Households have been cutting their demand for energy in response to the price increases. Despite this, they have found it necessary to restrain their purchases of other goods and services in order to absorb the energy price impacts on their budgets. Average family income in Ontario, unadjusted for inflation, has risen by about 40 per cent from 1979 to 1983. Meanwhile, retail prices have increased by more than 130 per cent for home heating oil, 100 per cent for gasoline and 90 per cent for natural gas.

Industrial energy users are also hard hit by oil and gas price increases. Not only does demand for their products decrease due to the erosion of consumers' disposable income but production costs increase as well. These increased costs result in higher prices for their output if passed on to consumers or declining profit margins if they are absorbed by business enterprises. Either response has adverse impacts on real output, investment and employment in the province. Furthermore, export oriented industries find it difficult to retain or expand their market share in foreign countries.

Many of Ontario's key industries are heavy users of energy, particularly oil and natural gas. For example, energy costs exceed 15 per cent of value added in the pulp and paper, non-metallic minerals, primary metals and chemicals industries. Approximately 90 per cent of variable costs for ammonia production in the fertilizer industry is due to natural gas feedstock and energy costs.

As pointed out in the recent Petrochemical Industry Task Force Report, feedstock cost increases have placed the Ontario-based petrochemical industry at a considerable disadvantage relative to foreign competitors. Consequently, an important segment of the province's industrial structure is now at risk.

In addition to the real cost imposed on industry by actual petroleum price increases, there is a hidden cost arising from uncertainty with respect to future policy for oil and gas pricing. This uncertainty is inhibiting investment by industrial enterprises and creating losses in potential productivity and employment.

Ontario's economy has been forced to adjust to abrupt increases in energy prices over the past four years. The transition has proved to be costly in terms of lost output, unemployment, inflation and erosion of the industrial base.

REVENUE SHARING

Ontario has consistently held the position that the national energy policy should include a revenue sharing arrangement which addresses the needs of both the producer and consumer provinces. In 1979, the Premier of Ontario outlined a comprehensive, national reinvestment plan for recycling the income transfers arising from increases in oil and natural gas prices. The goals were to sustain national output and employment and contain inflation while simultaneously enhancing national energy security.

The fiscal regime that was introduced in the NEP was designed to achieve a more even distribution of the revenues resulting from higher oil and natural gas prices. It was modified by the Canada/Alberta Agreement of September 1981 which sought to generate additional revenues by accelerating price increases beyond the NEP schedule. Further adjustments to pricing and revenue sharing were introduced in May 1982 and June 1983.

What has been the result of these policy changes since 1979? As shown in Table 1, total upstream revenues from crude oil and natural gas, after allowing for operating costs, are double the 1979 level of $10 billion. About one-third of the total is derived from sales in Ontario, one-quarter from sales elsewhere in Canada and the balance from exports.

The federal government has succeeded in increasing its own share of this enlarged flow but has made significant concessions to the industry since mid-1982.

The producing provinces are receiving a larger amount in dollar terms but a smaller percentage of total revenues.

The petroleum industry is now receiving more than two and a half times the amount it received in 1979. Following a temporary decline, its share is now much higher than was the case immediately prior to the introduction of the NEP.

TABLE 1: Net Upstream Revenues from Canadian Crude Oil and Natural Gas Production

	Industry		Provincial		Federal		Total
	$Bill.	%	$Bill.	%	$Bill.	%	$Bill.
1979	4.19	41	4.65	46	1.34	13	10.18
1980	6.30	46	5.51	40	1.83	14	13.64
1981	5.95	40	5.60	37	3.45	23	15.00
1982	7.51	40	6.03	33	5.11	27	18.65
1983	10.60	53	5.31	27	3.98	20	19.89
1984 (est.)	11.10	55	5.37	27	3.71	18	20.18

Note: The industry share includes incentive payments received from Alberta and the federal government. The provincial share includes land payments made by the industry. Revenues shown are net of operating costs.

Sources: 1979-82, Canadian Petroleum Industry Monitoring Survey, various issues.
1983-84, Detailed Revenue Sharing and Netback Assumptions, Canada/Alberta Agreement, Energy, Mines and Resources Canada.

From 1980 to 1983, the federal government obtained about $14.4 billion in net revenues, that is, exclusive of its incentive payments to the petroleum industry. It has used part of these revenues to provide direct assistance to energy users for conservation and oil substitution as well as to support energy research and technology development. Federal expenditures on consumer-oriented energy programs and energy technology research across Canada have amounted to less than two billion dollars over the 1980/81 to 1983/84 fiscal years. These outlays represent well under 15 per cent of the cumulative federal receipts from upstream revenues over that period.

It is clear that the bulk of revenues generated by rapid oil and natural gas price increases has come from the major energy consuming regions, such as Ontario, with few direct reinvestment offsets.

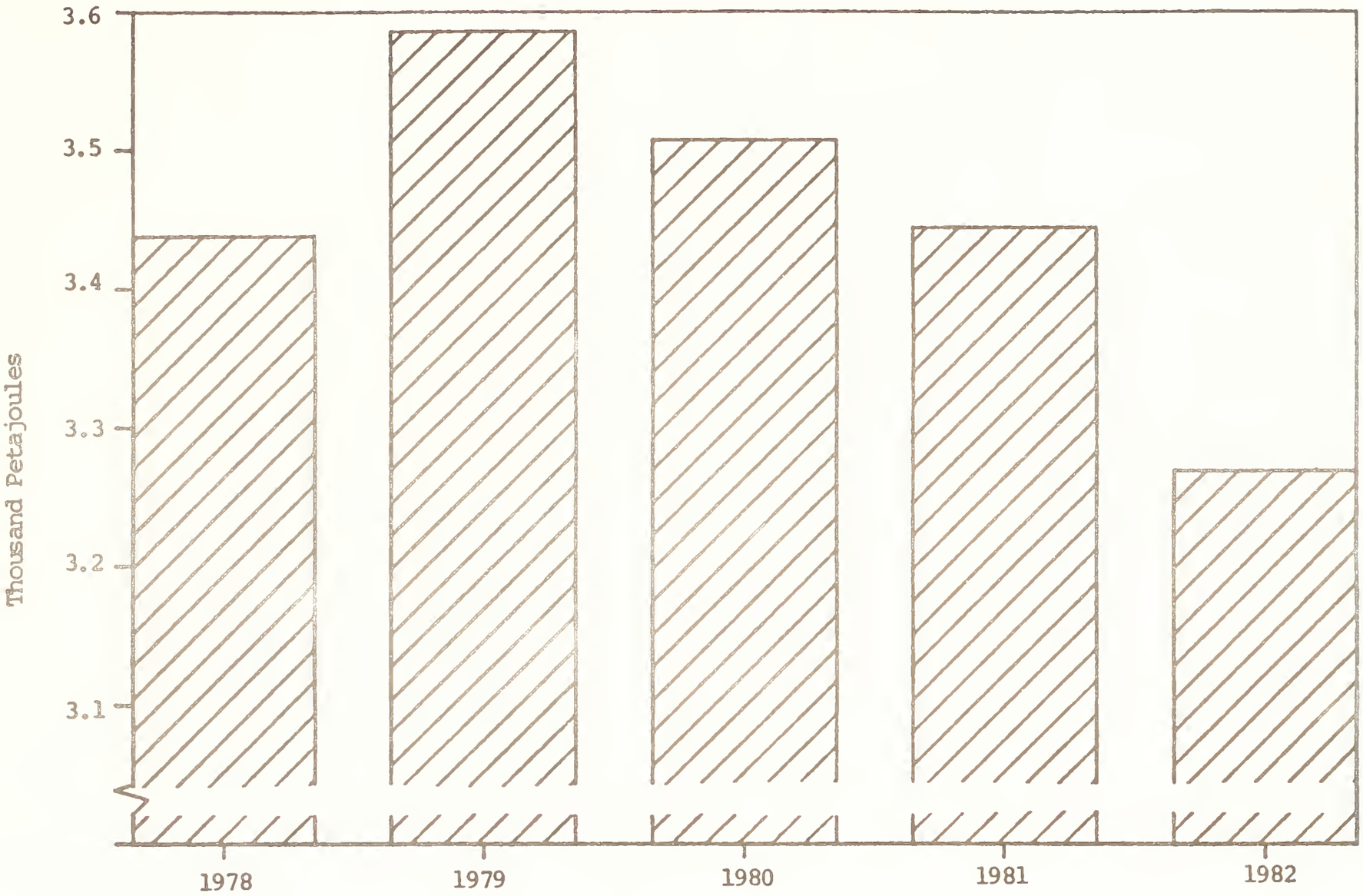
ONTARIO'S ENERGY SITUATION

In light of significant changes in the energy environment, Ontario has implemented a strategy for reducing energy consumption and increasing Canadian oil self-sufficiency. This strategy has three major components: conservation of energy in all forms; substituting electricity, natural gas and renewable energy forms for oil; and, increasing the domestic supply of petroleum. The basic policies are contained in two public documents: "Energy Security for the Eighties: A Policy for Ontario" (1979) and "A Ten Point Energy Conservation and Oil Substitution Program" (1980).

Changes In Ontario's Energy Demand

Ontario's response to the sharp rise in energy prices has been positive, direct and significant. Chart 1 shows that total primary energy use in the province peaked in 1979 at nearly 3500 petajoules. At that time, oil use also peaked and comprised just over 40 per cent of the total. By 1982, total primary energy demand had declined by over 9 per cent from the peak. During the same period, oil use was reduced by nearly 22 per cent and the oil share declined to less than 35 per cent.

CHART 1: ONTARIO'S PRIMARY ENERGY USE



Source: Statistics Canada.

Price escalation, government conservation programs and the recession have all contributed to this sharp reduction in energy demand. About 60 per cent of the decline in secondary energy use between 1980 and 1982 was due to the recession while the remaining 40 per cent resulted from improvements in the efficiency of energy use.

Energy Conservation

Ontario has been reducing its energy requirements in relation to economic activity. Between 1979 and 1982, secondary energy use per dollar of real gross domestic product declined by close to 5 per cent. In many key areas of activity results have been very encouraging.

For example, the industrial sector reduced its energy use per dollar of output by nearly 10 per cent in the 1980-82 period. Average consumption of energy for household purposes fell by a similar amount while gasoline and diesel consumption per registered road vehicle was cut by nearly 8 per cent over the same period. Commercial building operators who are participating in Ministry of Energy conservation programs have reported energy savings of 22 per cent within the initial year of implementation. Since 1976, the Ontario government has reduced energy use in its own buildings by 25 per cent.

The government of Ontario has been assisting its citizens in making the transition to a more energy-conserving society. In the fiscal years 1979/80 through 1982/83, direct government expenditures for energy conservation totaled nearly $55 million. Most of this expenditure has taken the form of incentives for equipment installation and energy management in the commercial and industrial sectors.

The province is providing funding and technical assistance to municipalities to develop energy management expertise. As well, the government has invested $17 million in improving the energy efficiency of its own buildings.

In the residential sector, the provincial Heat Save Program, which shows homeowners the proper materials and techniques for conserving energy, has benefited over 100,000 homeowners in 37 communities. Also, certain energy-conserving materials have been exempt from provincial sales tax.

Energy conservation initiatives in the transportation sector include educational programs for fleet operators and drivers, promotion of van pooling by private and public employers and demonstrations of energy-conserving opportunities in traffic management.

Oil Substitution

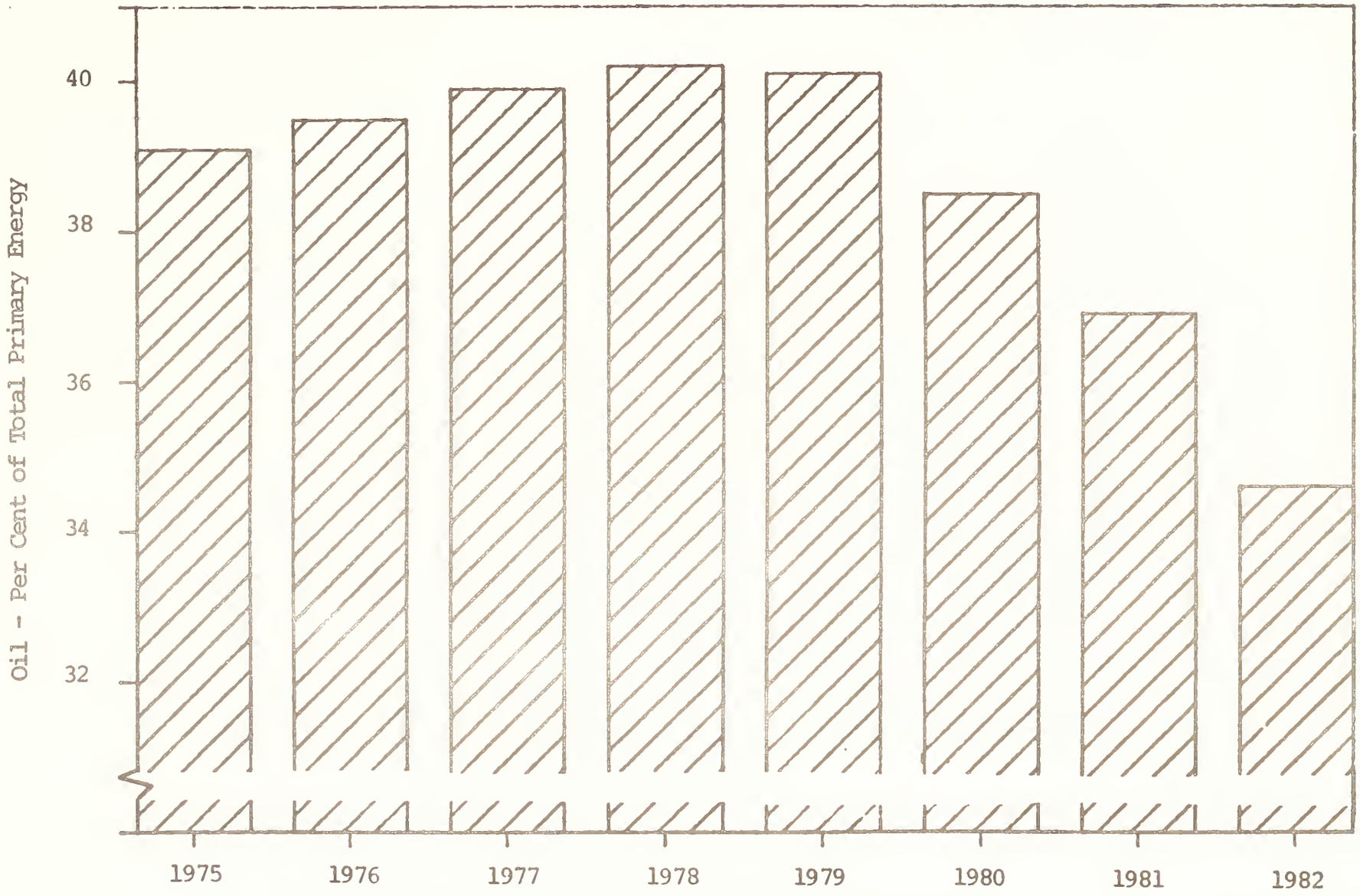
Along with the improvement in efficiency of overall energy use in the Ontario economy, there has been a pronounced reduction in oil consumption. As Chart 2 shows, Ontario's dependence on oil has been falling as a result of substitution of other energy forms.

The "off-oil" program contained in the NEP, the Canada Oil Substitution Program (COSP), has been instrumental in promoting oil substitution. Since the introduction of COSP in 1980, 234,000 Ontario homeowners have switched from oil as a heating fuel, primarily to natural gas, electricity and wood.

The Ontario government supports the objective of oil substitution. Municipalities and government institutions such as schools, colleges, universities and hospitals have received $12 million and industry has been provided $10 million to assist in converting from oil. These incentives alone have reduced annual oil consumption by about 150 million litres. In addition, the province's Residential Energy Advisory Program is helping to reinforce the substitution of other energy forms for oil in home heating.

In the most oil-dependent sector, transportation, provincial sales tax exemptions for alternative fuels, vehicles and conversion equipment have contributed to substantial reductions in gasoline use.

CHART 2: ONTARIO'S OIL DEPENDENCE



Source: Statistics Canada.

Approximately 280 million litres of propane were used for transportation purposes in 1983, replacing the need for 230 million litres of gasoline. In addition, Ontario jointly funds a number of projects to establish the feasibility of methanol-gasoline blends and neat methanol for vehicles in the Ontario market.

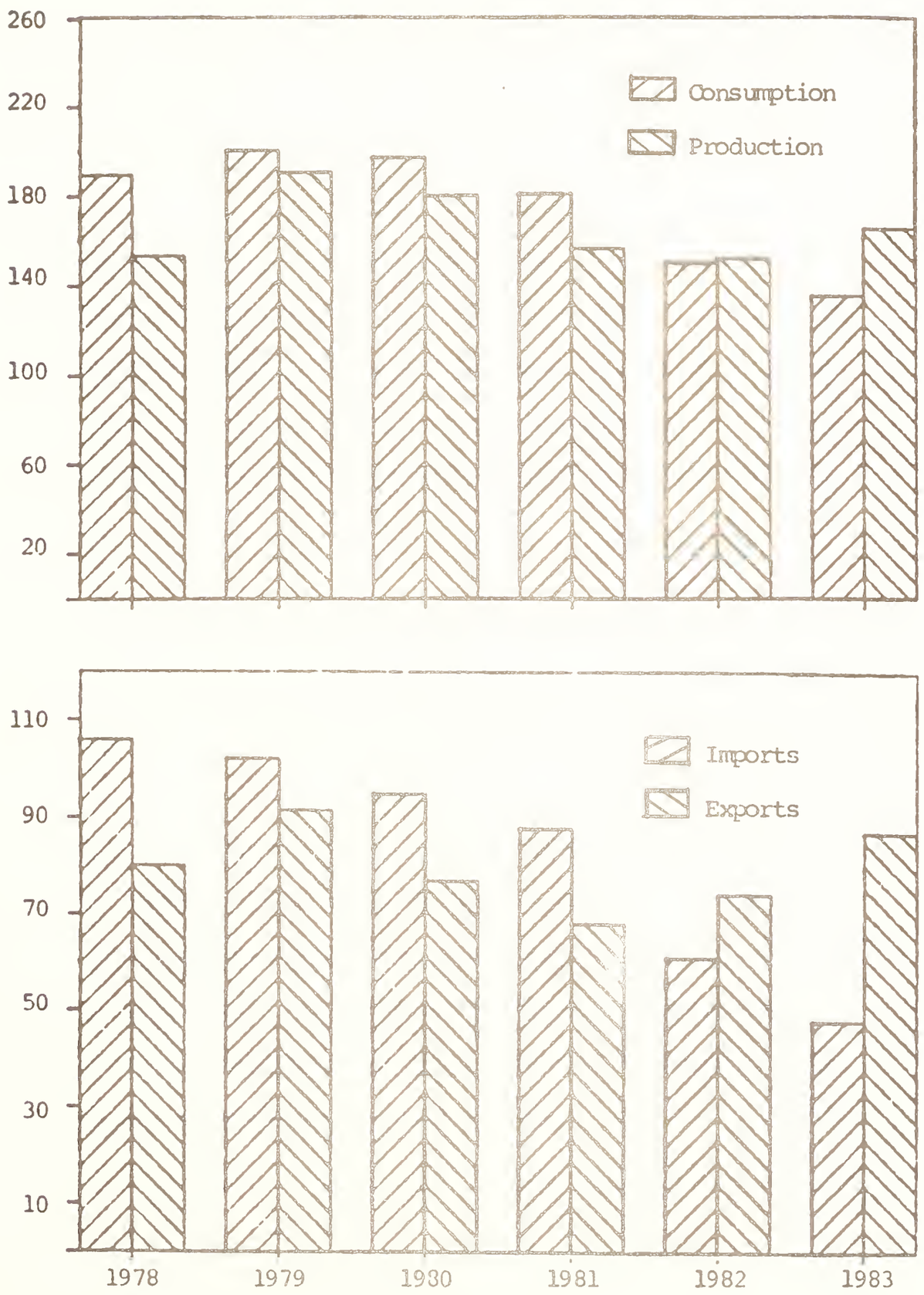
The trends in oil consumption in Ontario have been positive. The province is making a major contribution to the national goal of oil self-sufficiency.

Energy Supply Security

Ontario fully supports the objective of Canadian energy security. Given the relative abundance of natural gas, coal and uranium in Canada, the concern relates primarily to crude oil. Current conditions of over supply and excess production capacity for oil on a worldwide basis do not warrant complacency.

Chart 3 shows recent trends in Canada's demand for and supply of crude oil. In 1983, Canada achieved "technical" self-sufficiency in oil. It was technical in the sense that production exceeded consumption. However, the mix of Canadian production is not totally suitable for Canadian refineries. Thus, imports are still an important component of Canadian oil supply and a portion of domestic production continues to be

CHART 3: CANADA'S OIL CONSUMPTION, PRODUCTION AND TRADE
('000 cu. metres/day)



Source: Energy, Mines and Resources Canada.

exported. As well, there are constraints to the movement of domestic supplies to meet the full requirements of the Atlantic provinces and eastern Quebec. Therefore, technical self-sufficiency is not equivalent to elimination of import dependence. Nevertheless, progress has been achieved in reducing the "import gap" since 1979.

Clearly, Canada's reduced dependence on foreign oil has resulted more from a decline in demand than from an increase in domestic supply. The oil consumers of Canada have made adjustments to their consumption patterns, sometimes at considerable cost, to achieve this result. As previously documented, Ontario has made a substantial contribution to this effort.

The response on the supply side is mixed. Canada's conventional oil reserves have only recently reversed their longstanding downward trend with reserve additions slightly exceeding production in the past two years.

The development of heavy oil and oil sands has been proceeding, but at a slow pace. Although these types of oil are attractively priced, an approach which focuses on relatively small-scale, low-risk projects is only now gaining support. Delays in the development and upgrading of those oil resources which are economic in Canada entail potential costs in terms of lost national income and employment.

There have been strong exploration efforts in the frontiers but these have been only partially successful in locating oil reserves which are believed to exist.

In the last several years, additions to marketable natural gas reserves have outpaced production, resulting in a net addition to Canada's remaining reserves of natural gas. Additions averaged 180 billion cubic metres per year in the 1978-81 period. In 1982, the increment was short of 100 billion cubic metres. Preliminary data indicate that marketable reserves were virtually unchanged in 1983. Nevertheless, Canada does have large proven reserves of natural gas. As well, current production capability far exceeds actual demand.

Ontario does not have large reserves of petroleum and natural gas. However, the provincial government is participating in the attempt to expand national oil reserves through the activities of the Ontario Energy Corporation (OEC) and through its investments in Suncor and the Trillium Exploration Corporation.

Suncor has invested in its Fort McMurray oil sands operation to add approximately 90 million barrels to synthetic crude oil reserves. In addition, it is investing $355 million in upgrading its Sarnia refinery. This will improve efficiency, reducing throughput by 25,000 barrels per day and increasing the proportion of higher value-added products in overall output.

Through the OEC and Trillium Exploration Corporation, Ontario is involved in exploration activities in southwestern Ontario, Alberta, Hudson Bay and both the East Coast and Northern frontier areas.

Achieving national oil self-sufficiency will require that oil demand decline and supply increase. Ontario is contributing to both sides of the equation.

Renewable Energy Development

An essential component of long-term energy strategy is the development of renewable energy resources. The National Energy Program identified several areas such as biomass and solar energy where federal initiatives were already underway.

While the NEP acknowledged the importance of renewable energy and outlined a framework for the development of such energy technologies, the only substantive contribution was the incentive for residential use of wood energy. The Renewable Energy Infrastructure Program, which, as a component of the Distribution System Expansion Program, was aimed at the development of infrastructure for renewable energy systems, was never implemented.

In 1980, the Ontario government launched initiatives for developing energy from waste and solar energy. It entered into a three-year agreement with the federal government - the Conservation and Renewable Energy Demonstration Agreement - for joint funding of demonstration projects. In addition, the Ontario government instituted the Agricultural Energy program in 1981 with provisions for funding projects based upon renewable energy sources.

Currently, Ontario produces just over 2 per cent of its primary energy needs from renewable sources, excluding hydroelectric power. Production has increased by about 25 per cent since 1980, mainly as a result of the expanding use of wood waste in the forest industry.

The development of renewable energy is being aided by "tax expenditures". Ontario has paralleled the federal accelerated depreciation provision for Class 34 assets since 1980. Also, provincial sales tax exemptions apply to purchases of alternative and dual-fueled vehicles and conversion equipment. Furthermore, alternative transportation fuels, including alcohol, have been exempt from the provincial gasoline tax since 1980.

The goal of Ontario's alternative and renewable energy programs is to achieve commercial acceptance and market penetration of the most promising technologies and fuels. This is a major

challenge since it requires structural changes in energy production systems and fundamental changes in consumers' perceptions of what energy is and how it is obtained. Nevertheless, there are encouraging signs that progress is being made.

For example, significant cost reductions have been achieved in the manufacturing, installation and use of active solar equipment. Passive solar designs and construction methods are gaining acceptance by developers and contractors. Provincial financial support is available for the construction of demonstration homes that incorporate passive solar and other energy-conserving features.

The Ontario government is aiding the development of municipal solid waste as an energy resource. Along with the federal government it has contributed funds to develop a fluidized bed incinerator at the Lakeview Water Pollution Control Plant that will supply steam for general use and save more than half a million dollars per year in fuel costs. It is also financing studies and proposals for future energy-from-waste facilities in London, North Bay, Ottawa, Sudbury, Waterloo Region and Kent County.

Ontario's agricultural energy program has funded projects for renewable-fueled greenhouses, anaerobic digestion of waste for methane production, renewable-fueled grain-drying operations and increased use of waste corn cobs as energy feedstock.

Although the developments in renewable energy technology in the last few years have been encouraging, much remains to be done to ensure commercial acceptance. Past increases in conventional energy prices were a major impetus to the initial development of many renewable energy systems. However, since some of these alternatives are viable at today's prices, further increases in real energy prices are not a necessary condition for their continued development and adoption.

CANADIANIZATION

A key objective of the NEP was to provide Canadians with greater opportunity to participate in the petroleum sector and specifically to achieve 50 per cent Canadian ownership by 1990. A number of measures were introduced to achieve this goal:

- preferential exploration and development grants to Canadian individuals and companies under the Petroleum Incentives Program;

- a required 50 per cent Canadian ownership prior to issuance of a production license for Canada Lands projects;

- reservation of a 25 per cent Crown-carried interest in Canada Lands; and

- an increased role for PetroCanada.

Table 2 shows how Canadian ownership of total revenues and assets in the Canadian oil and gas industry has changed from 1971 to 1982.

TABLE 2: Canadian Ownership
of the Oil and Gas Industry
Per cent

	1971	1973	1975	1977	1979	1980	1981	1982
Canadian Ownership								
- Based on Revenues	20.5	21.3	23.9	26.3	28.0	26.1	32.8	34.2
- Based on Assets	22.3	24.2	27.8	33.2	38.5	37.9	47.1	50.5

Source: Canadian Petroleum Industry Monitoring Survey, various issues.

Prior to 1975, Canadian ownership of revenues and assets was increasing, although at a very slow rate. The emergence of PetroCanada in 1975 increased the pace to some extent. Under the NEP, there has been a marked acceleration as a result of greater public and private sector participation.

Ontario's purchase in 1981 of a 25 per cent interest in Suncor was intended, in part, to assist in the Canadianization of the petroleum industry. The U.S. parent, Sun Company Inc., has undertaken to seek other Canadian investors so that at least 51 per cent of Suncor will be owned by Canadians.

In addition, the Trillium Exploration Corporation, a joint enterprise of the Ontario Energy Corporation (two-thirds interest) and Suncor (one-third interest), has entered into several exploration programs on frontier lands held by Suncor and other firms. Trillium contributes to the Canadianization of frontier oil and gas development and the expansion of frontier oil exploration.

Various smaller investments by the Ontario Energy Corporation in the oil and gas industry also contribute to Canadianization.

In response to the Canadianization incentives, Canadian controlled companies have increased their share of total upstream investment from 52 per cent in 1981 to 55 per cent in 1982. In particular, these companies have raised their spending on Canada Lands by almost 80 per cent over the same period. Their share of the total investment in these areas has risen from 55 per cent to 66 per cent. Preliminary data for 1983 indicate a continuation of these trends.

So far, the incentives for Canadianization have been producing results in line with the ownership objective. Canadian owned companies are positioning themselves for an enlarged share of the benefits to be derived from development of the country's oil and gas potential.

CONCLUSION

This submission has looked at the effects of the National Energy Program largely from the point of view of the Province of Ontario, the main consumer of domestic crude oil and natural gas.

Although substantially lacking its own crude oil and natural gas supplies, the Province has played a major role both in reducing demand and in seeking new supplies. Its energy conservation and oil substitution activities have contributed significantly to the demand reduction objectives of the NEP. On the supply side, Ontario is a major producer of an alternative form of energy, electricity, and is active in the research and development of other alternatives. It has also invested significantly in the search for new supplies of oil and gas in Canada.

The NEP has a major impact in Ontario, but the Province in turn has made a major contribution toward the objectives of the NEP.

HD/9502/.C33/.O565
Canada. Parliament. Senate
Submission to the
Standing Senate
c.1
tor mai

FEB 26 2015